Accessing the Emerging Carbon Market through the Michigan Conservation & Climate Initiative

Creating Revenue for Landowners through the Sale of Carbon Offset Credits

March 14, 2007

Michigan Agri-Energy Conference
Lansing, MI

Delta P2E2 Center

600 W. St. Joseph St.
Suite 10
Lansing, MI 48933
michiganclimate.org

about Delta

Mission: Improve Environmental Quality and Promote Community Economic Development in the Great Lakes Region.

Programs:

- Pollution Prevention and Resource Conservation
  Policy development, technical assistance, green design, implementation financing
- Brownfield Redevelopment
  Financing, land assembly, site control, remediation, community development capacity
- Sustainability Programs
  Improve sustainability footprint, address environmental performance, and social and economic impacts
- Emission Trading Markets
  Create community benefits through aggregation and trading of carbon offset credits

Delta P2E2 Center

what is global warming?

- Greenhouse gases form a blanket around the earth that traps heat from the sun within the earth's atmosphere
  - Leads to global temperature increases
- The six types of greenhouse gases:
  - Carbon dioxide (CO_2)
  - Methane (CH_4)
  - Nitrous Oxide (N_2O)
  - Sulfur hexafluoride (SF_6)
  - Perfluorocarbons (PFCs)
  - Hydrofluorocarbons (HFCs)

Delta P2E2 Center

global carbon dioxide cycle

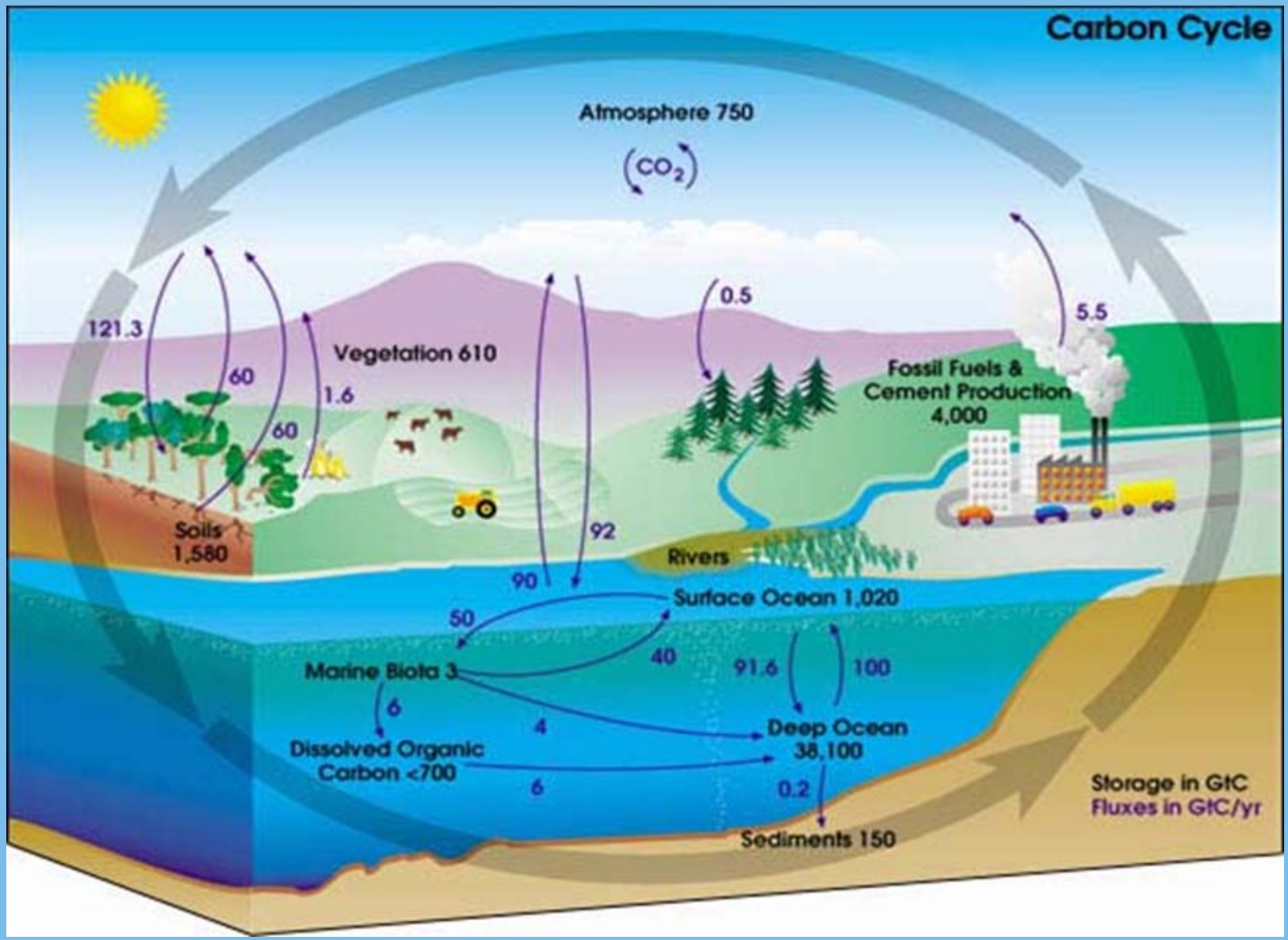


Illustration Courtesy of NASA Earth Science Enterprise

Delta P2E2 Center

emission trading markets

The Beginning – 1990 Amendments to Clean Air Act

- EPA proposes a cap-and-trade mechanism to regulate sulfur dioxide emissions (acid rain) from electric generating facilities
- Cap-and-Trade Basics
  - Government caps the emissions level of SO_2 and distributes allocations in one-ton increments for the release of SO_2
  - Each source must have enough allocations to cover its SO_2 emissions for that year
  - Sources that cannot cover emissions must either reduce emissions or buy surplus allocations from other sources
  - Rationale: Since allocations have a monetary value, sources have an economic incentive to reduce emissions

Results:

- 1980 – SO_2 emissions at 17.5 million tons
- 2000 – Cap set at 9.5 million tons
- 2007 - Price of an allocation - $475
- 2010 – Cap set at 8.95 million tons

Data from US Environmental Protection Agency; Evolution Markets

Chicago Climate Exchange (CCX)

- Voluntary, member-based, cap-and-trade market for the reduction of greenhouse gases
- Self-regulated market with legally binding emission reduction targets
- Cap is the member's average annual emissions from 1998-2001
- Beginning in 2003, members must annually reduce emissions 1%
- By 2006, members must show a 4% reduction in emissions
- By 2010, members must show a 6% reduction in emissions

- Over 200 members
  - Ford, Dow, AEP, Motorola, Waste Management, City of Chicago, Michigan State University, State of New Mexico
- Delta is Associate Member and Registered Aggregator
- Emission reduction results
  - 2003 – 19,369,100 mT (7.8%)
  - 2004 – 31,823,800 mT (13.5%)
  - 2005 – 23,575,900 mT (10.7%)

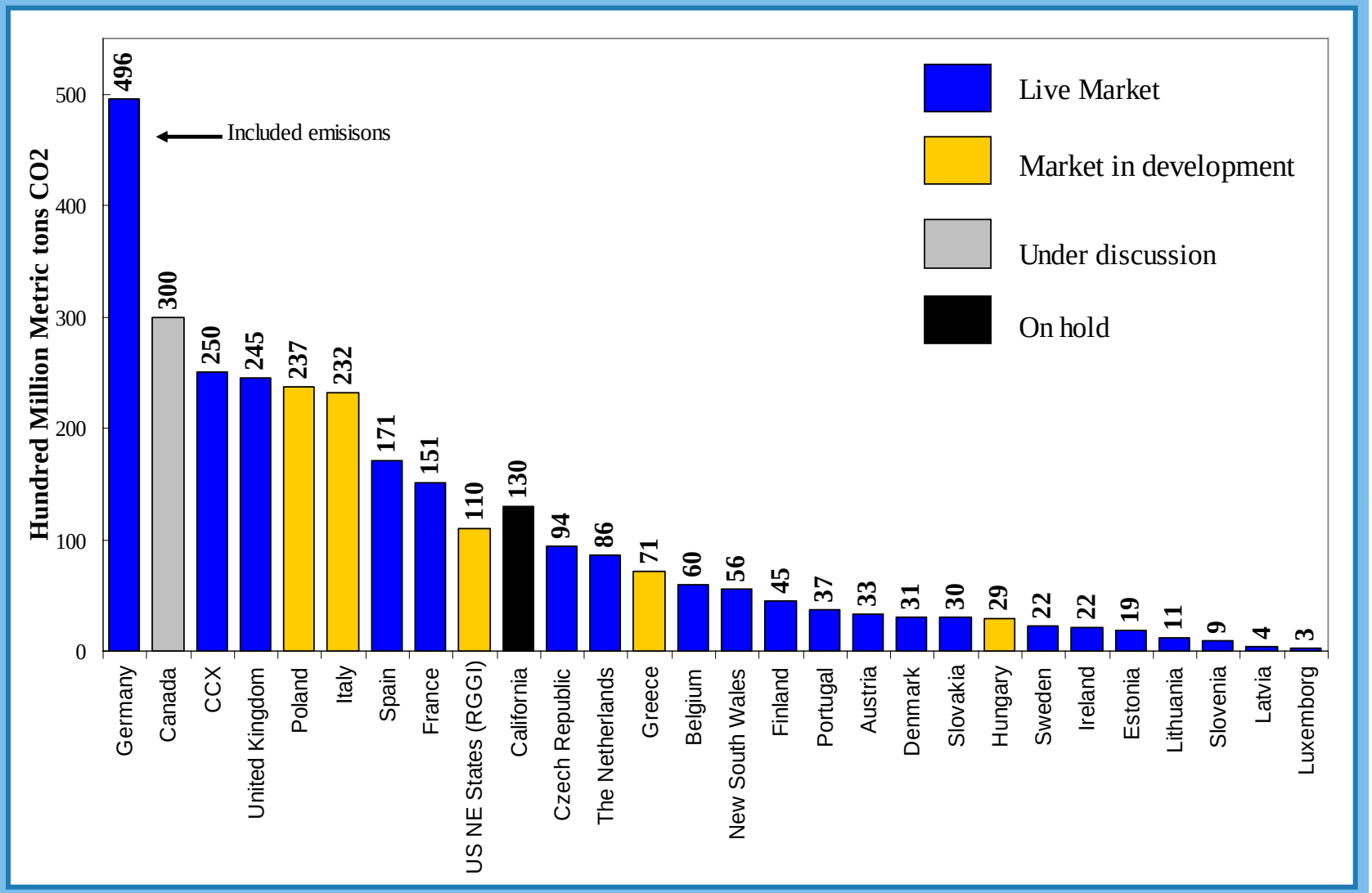
Delta P2E2 Center

the role of carbon offsets

- The reduction of greenhouse gas emissions can be achieved through various activities.
  - Prevention/reduction of GHG emissions from reaching the atmosphere, i.e. conservation tillage
  - Remove GHG's from the atmosphere, i.e. reforestation
- CCX allows members to invest in activities that "offset" greenhouse gas emissions, i.e. buying offset credits
  - Only 3% of required 6% reduction can be achieved through offset purchases
- Why purchase carbon offset credits?
  - "Buy" time to install pollution control technology
  - Offset unexpected emissions
  - Bank for future use
  - Invest in sustainable activities

Delta P2E2 Center

global carbon market volumes



Delta carbon programs

Illinois Conservation and Climate Initiative (ICCI)

- Partnership with Illinois EPA, Illinois Dept. of Natural Resources, Illinois Dept. of Agriculture, Illinois Soil and Water Conservation Districts
- Aggregate and trade carbon offset credits generated through conservation practices or anaerobic digesters
- www.illinoisclimate.org

Michigan Conservation and Climate Initiative (MCCI)

- Partnership with Michigan Association of Conservation Districts and Michigan Department of Agriculture
- Aggregate and trade carbon offset credits generated through conservation practices and anaerobic digesters
- www.michiganclimate.org

Michigan Forest Carbon Program

- Partnership with Michigan Dept. of Natural Resources
- Establish a pilot program to aggregate and trade carbon offset credits generated from working forests owned by non-industrial private landowners

Establishing Carbon Offset Programs

- Indiana, Arkansas

MCCI overview

- Farmers/landowners earn carbon offset credits when they use conservation tillage, plant grasses and trees, or capture methane with manure digesters.
- Conservation practices store carbon in the soil and plants. Manure digesters produce energy and prevent methane from being released to the atmosphere.
- Credits are aggregated from many landowners and sold through the Chicago Climate Exchange (CCX®).

Delta P2E2 Center

MCCI roles & responsibilities

- Delta Institute: Aggregation; contracting with landowners; maintains program database; program promotion
- Michigan Dept of Agriculture: Initial program development; Convening of the Advisory Committee; program promotion
  - State fully supports MCCI
- CCX®: Trading platform and rules
- Local Conservation Districts: Local outreach and enrollment assistance; CCX®-approved verifiers

Delta P2E2 Center

MCCI program eligibility

- Conservation tillage (no-till or strip-till)
  - Based on NRCS definitions
  - Must maintain at least 30% residue
- Grass: after Jan. 1,1999
- Tree planting: after Jan. 1,1990
- Methane collection at livestock operations and landfills: after Jan. 1,1999

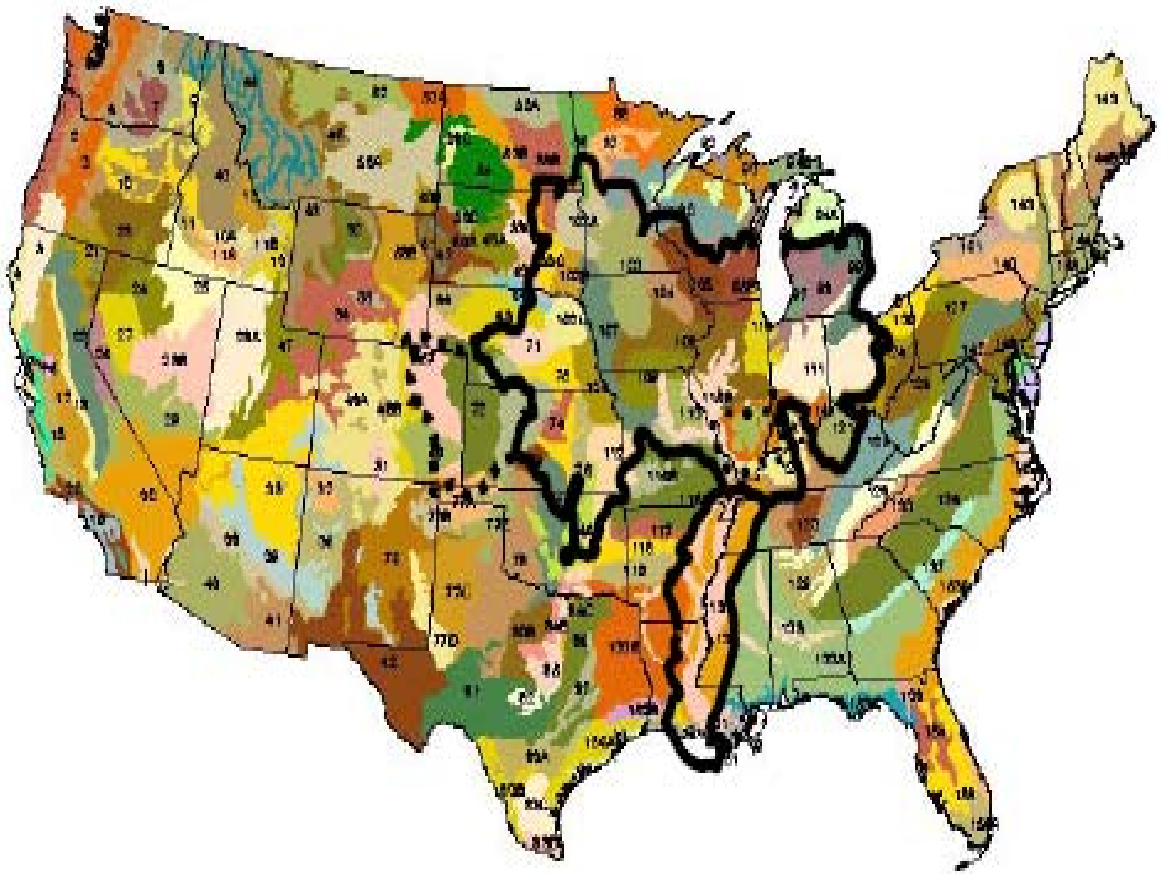
- Contractual commitment through 2010 for conservation farming, grass and tree plantings and methane digesters. Additional requirement to maintain tree planting beyond 2010 (to keep carbon sequestered).

- Open enrollment – March 1

program carbon credits

- Conservation tillage is credited 0.5 metric tons CO_2 per acre per year.
- Grass plantings implemented after January 1, 1999 are credited at 0.75 metric tons CO_2 per acre per year.
- Methane projects implemented after January 1, 1999 with necessary biogas flow monitoring equipment credited at 18.25 metric tons CO_2 per ton of methane per year.
- Forestation: January 1,1990. Projects include afforestation, reforestation via plantings, forest enrichment, and passive reforestation. Credits will vary depending on the region, tree species, and years since planted and average between 2-4 tons/acre/year.

soil based carbon offset opportunities



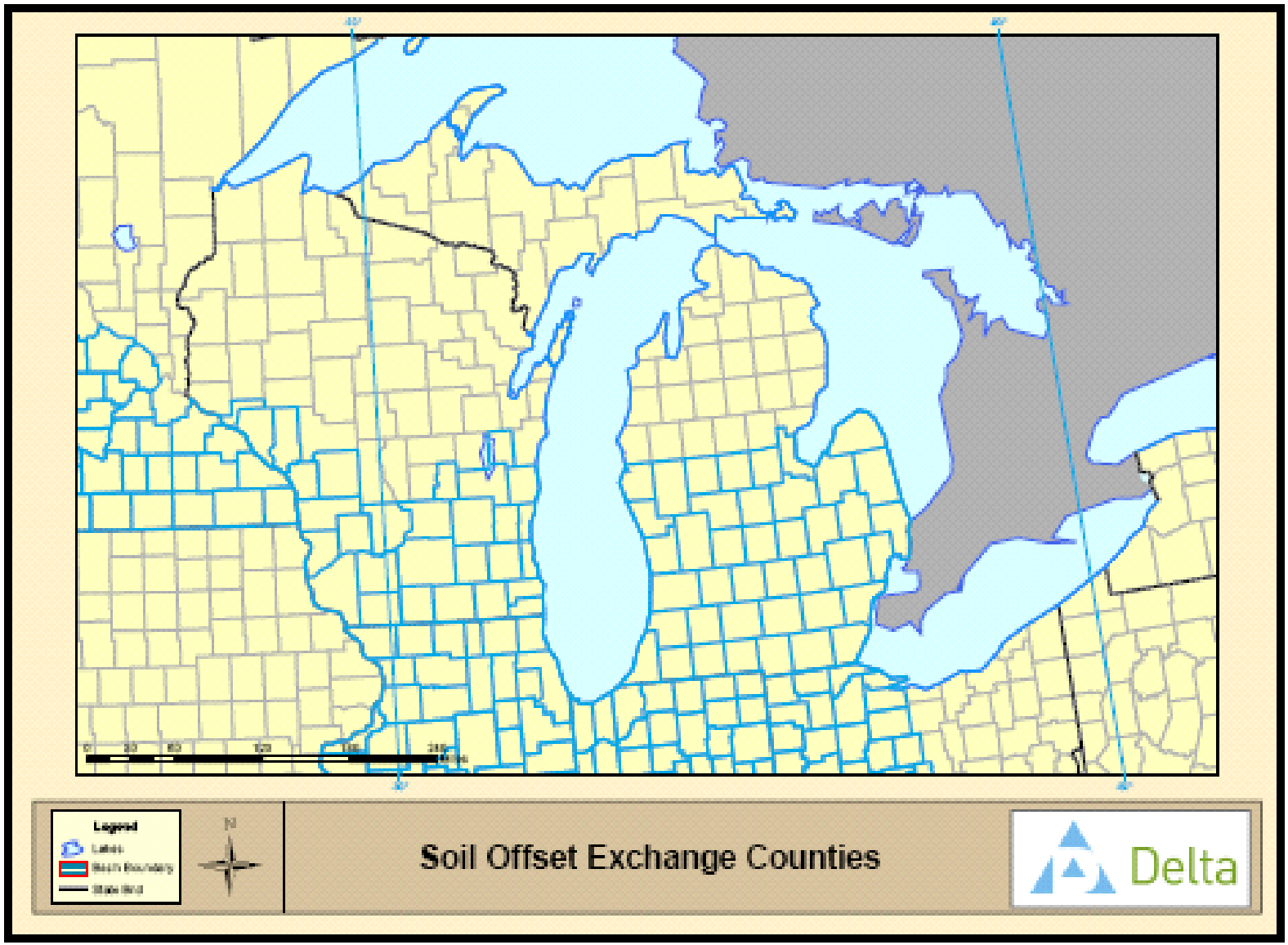
Carbon Credits for no-till or grasses

Carbon Credits for grasses only

USDA NRCS

Delta P2E2 Center

grass and tillage eligibility



Delta P2E2 Center

frequently asked questions

- Are orchards eligible?
  - *Fruit orchards, Christmas tree farms, commercial nurseries are not eligible*
- Is the grass planted between the rows in an orchard eligible?
  - *If the orchard is new and the grass was planted after January 1, 1999, than yes.*
- Are leased lands eligible?
  - Yes. The individual who signs the contracts indicates control over the land.
- What about land with multiple owners?
  - This needs to be worked out amongst the landowners. However, Delta only cuts one check per contract. So, the owners must designate an individual to receive the check.
- Is there a cost to enroll?
  - No. The landowner pays nothing to enroll.

MCCI contracting

- Contract is between the Delta Institute (CCX approved aggregator) and the project owner.
- Separate contracts for Soil Offset (Conservation Tillage & Grass), Forest Offset, and Methane Offset Credit projects.
- Contracts stipulate the program requirements and give the Delta Institute the rights to trade the carbon offset credits.
- Contract periods for Soil and Forest Offset projects are a minimum of four years through 2010.
- There are no minimum contract periods for Methane Offset projects, but recommend through 2010.
- If the land owner chooses to discontinue conservation tillage practices, the contract includes stipulations for the project owner to pay back a portion of the proceeds from carbon offset trading.

Delta P2E2 Center

verification of grass and tillage contracts

- Your local conservation district staff will visit the project site and verify the site conditions.
- Cost for verification services is provided by the CCX.
- At least 10% of enrolled acreage will be verified.
  - Typically, 2-3 hrs per farm
- Verification of conservation tillage projects will occur in the spring and fall
- Carbon offsets can be traded after the verification report is received and accepted by CCX.

Delta P2E2 Center

trading

- As an aggregator, the Delta Institute can trade carbon offset credits on the CCX® platform.
- Carbon offsets can only be traded once verification has occurred and has been accepted by CCX®.
- For soil and forest offsets, 80% of the credits can be traded- 20% is required to remain in a reserve pool owned by the landowner that is sold at the end of the contract period.
- Trades are conducted in blocks of 100 metric ton units, known as Carbon Financial Instruments (CFI)
- Carbon offset credits are trading between $3.50 and $4.50 per metric ton

payments

- Once carbon offsets are traded, the funds from the trade will be placed by CCX in an account maintained by the Delta Institute.
- CCX trading fees of $0.20/metric ton will be deducted from the proceeds.
- An aggregation fee of 8% will also be deducted from the gross proceeds.
- The Delta Institute will provide payments to the project owners based on their contribution to the credit pool.

Delta P2E2 Center

conservation tillage example

Conservation tillage practices on 1,000 acres of land is equivalent to approximately 500 metric tons of CO_2. 20% or 100 metric tons is placed in a reserve pool.

Initial Annual Payments – 2007-2009	
Value of Offsets - 400 metric tons * $4.00	= $1,600
CCX Trading Fee – 400 metric tons * $0.20	= $80
Aggregation Fee - $1,600 * 8%	= $128
Total Fees	= $208
Annual Payment to Project Owner	= $1,392

Final Payment - 2010	
Value of Offsets - 800 metric tons * $4.00	= $3,200
CCX Trading Fee – 800 metric tons * $0.20	= $160
Aggregation Fee - $3,200 * 8%	= $256
Total Fees	= $416
Final Payment to Project Owner	= $2,784

Total Net Revenue over Contract Period	= $6,960

Delta P2E2 Center

tree planting example

Tree plantings after January 1, 1990 on 100 acres of land is equivalent to approximately 454 metric tons of CO_2. 20% or 90.8 metric tons is placed in a reserve pool.

Initial Annual Payments – 2007-2009	
Value of Offsets – 363.2 metric tons * $4.00	= $1,453
CCX Trading Fee – 363.2 metric tons * $0.20	= $72
Aggregation Fee - $1,453 * 8%	= $116
Total Fees	= $188
Annual Payment to Project Owner	= $1,265

Final Payment - 2010	
Value of Offsets – 726.4 metric tons * $4.00	= $2,906
CCX Trading Fee – 726.4 metric tons * $0.20	= $145
Aggregation Fee - $2,906 * 8%	= $232
Total Fees	= $377
Final Payment to Project Owner	= $2,529

Total Net Revenue over Contract Period	= $ 6,324

Delta P2E2 Center

benefits of MCCI program

Economic

- New Income Source: potentially a new “cash crop”
  - •Reduces production costs, e.g., diesel fuel.
  - •Biogas methane a renewable fuel that displaces more polluting sources of energy.

Environmental

- •Enriches soil and improves drought resistance (a bigger concern because of climate change)
- •Creates wildlife habitat
- •Limits soil and nutrient run-off to streams and lakes.
- •Improved manure management and reduced odors with methane recovery.

Social

- •Develop revenue streams to support statewide conservation efforts

Delta P2E2 Center

Michigan forest carbon program

(under development for non-industrial working forests)

Objectives

- Develop an offset program that can be integrated into Michigan's Forest Stewardship Program (FSP) and other forest management programs.
- Provide a niche for working forests and small managed forests within the carbon markets.
- Develop a revolving technical assistance fund that promotes landowner participation by waiving initial inventory fees.
  - Technical assistance funds pays upfront inventory fees
  - Landowners repay the technical assistance fund through a percentage of the annual sale
  - Must have a forest stewardship plan to use TA funds
- To perform inventory, forester must be state registered forester, certified plan writing, SAF certified, or certified consulting forester
- Hope to open enrollment statewide this fall

Delta P2E2 Center

Carbon trading potential in Michigan

- MCCI
  - 1.3 million acres of no-till agriculture
  - 263,000 acres in CRP/CREP grass
  - 13,000 acres annually planted to trees (through CD's)
  - Potential net revenue returned to landowners:
    - Annual - $2.4 million
    - Over contract period – $13.4 million
- Working Forests
  - 10.6 million acres owned by non-industrial private landowners
  - Potential net revenue returned to landowners at 1 tons/ac/yr:
    - Annual - $24.6 million
    - Over contract period - $154.2 million

Delta P2E2 Center

contact us

Todd Parker
600 W. St. Joseph St.
Suite 10
Lansing, MI 48933
tparker@delta-institute.org
517.482.8810

Abigail Corso
53 W. Jackson Blvd.
Suite 230
Chicago, IL 60604
acorso@delta-institute.org
312.554.0900 x25

p2e2center.org

Delta P2E2 Center